varies from a smallest to a largest cross-section along its longitudinal axis.

9. (Amended) A movement detector as claimed in claim 1, characterized in that the sensor includes an infrared sensor.

10. (Amended) A method of installing a movement detector in a space in order to detect movement of a body in the space, a light-sensitive sensor being arranged above a ceiling of the space while optical means are arranged in such a manner that they project a multiple image of the space onto the sensor, characterized in that the optical means include a mirror assembly having a kaleidoscopic effect, the arrangement being such that the mirror assembly extends essentially through the ceiling.

A marked-up copy of the above amended claims showing the changes made is appended hereto.

REMARKS

The drawing is objected to in that the feature of claim 8 that 'the cross-section of the mirror assembly varies from a smallest to a largest cross-section along its longitudinal axis' must be shown.

Fig. 3 shows a mirror assembly (4) which increases gradually from a small cross-section at the top of the assembly to a large cross-section at the bottom of the assembly. As stated in the first full paragraph on page 4 of Applicants' specification,

'Fig. 3 shows a mirror assembly 4 whose cross-section at the top is slightly smaller than that at the bottom, so that the assembly 4 has a "tele-effect". The detection range in the space, therefore, is concentrated in a limited part thereof.'

Accordingly, it is felt that the drawings are in conformity with 37 CFR 1.83(a), and it is urged that the objection be withdrawn.

The Abstract is objected to because it is too short to adequately describe the invention. The Abstract has been expanded to call for a light sensor, a kaleidoscopic mirror and a lens, which work together to detect movement. Accordingly, it is urged that the objection to the Abstract be withdrawn.

The Specification is objected to due to various informalities. Headings have been inserted and the third and last paragraphs on page 1, as well as the first paragraph on page 3 of the Specification have been amended in accordance with the suggestions made by the Examiner. Accordingly, it is urged that the objection be withdrawn.

Claims 5-9 are objected to under 37 CFR 1.75(c) because a multiply dependent claim cannot depend from another multiply dependent claim.

Claims 1-5 and 7-10 have been amended to delete multiple dependency and also to delete reference numerals. Accordingly, it is urged that the objection be withdrawn.

Claims 1-5, 7 and 9 are rejected under 35 USC 102(b) as being anticipated by Keller ('688).

Keller shows in Fig. 3 a movement detector including an optical means (2, 3, 11). The Examiner urges that this optical means includes a mirror assembly (2) having a kaleidoscopic effect. However, Ketter's specification states that the optical means is a multi-sided prism of rectangular or square cross-section (col. 4, lines 58, 59), which prism forms a rectangular grid pattern (col. 5, line 67).s 12-15 and 67). Keller also states that the multi-sided prism may alternately be of polygonal cross-section (col. 3, lines 46-53), for example, hexagonal cross-section, in which case the prism forms a grid of equilateral triangles (col. 5, lines 12-15). Only two opposing surfaces, i.e., parallel planes, of the internal surfaces of the prism need be reflective (col. 5, lines 16-21).

In contrast, Applicant teaches (and claims) a movement detector with optical means including a mirror assembly having a kaleidoscopic effect. According to the on-line physics course **'Physics 20'**,

'Two mirrors placed at an acute angle to one another produce a kaleidoscopic effect, with multiple images formed.' **Core Unit III: Light: B. Reflection: 2). Plane Mirrors: Key Concepts:** http://www.sasked.gov.sk.ca/docs/physics/u3a22phy.html.

In teaching that the cross-section of its optical means may be square or hexagonal, and that only two opposing surfaces need be internally reflecting, Keller clearly demonstrates that optical means with a kaleidoscopic effect (mirrors placed at an acute angle to one another) is not intended.

Accordingly, Keller does not anticipate claim 1. As to the remaining dependent claims 2-5, 7 and 9, these claims are likewise not anticipated by reason of their direct or indirect dependency on claim 1. Accordingly, it is felt that the rejection is in error and should be withdrawn.

Claims 6 and 8 are rejected under 35 USC 103(a) as being upnatentable over Keller, in view of Chang ('346).

The Examiner states that while Keller does not explicitly disclose a prism with a triangular cross-section, nevertheless, such a shape is well-known in the art. Furthermore, the Examiner states that Chang shows a triangle-shaped deflector in a radiation detector.

With regard to Keller, it is again pointed out that Keller specifically teaches that only two opposing parallel surfaces need be reflecting. This would result in a grid pattern, as required by Keller, but would not result in the kaleidoscopic effect, as required by Applicant. The kaleidoscopic effect requires at least two plane mirrors set at an acute angle to one another. Thus, the skilled artisan would not conclude that Keller intended to include a triangular cross-section, since that would result in at least two plane mirrors set at an acute angle, resulting in a kaleidoscopic effect, not a grid pattern.

With regard to Chang's device, his signal detector indeed includes a deflector with triangular cross-section which varies in size from one surface (63) to another. However, the deflector is a truncated body with right and left deflector surfaces 61 and 62 tilted to reflect rays coming in laterally from a wide angle (e.g., S3) to the detector. In order to accomplish this, surfaces 61 and 62 reflect the rays from their **external** surfaces, **not** their **internal** surfaces. This is apparent from a study of the trajectory of 180 degree rays (S3 in Fig. 4 and 83 in Fig. 7).

In order to distinguish Applicant's invention more clearly from the teachings of Chang, claim 1 has been amended to insert the limitations of claim 2 calling for the mirror assembly

to constitute an elongate body whose reflecting surface faces inwards, and claim 2 has been cancelled.

Accordingly it is felt that claims 6 and 8 are patentable over the combination of Keller and Chang, and it is urged that the rejection be withdrawn.

Claim 10 is rejected under 35 USC 103(a) as being unpatentable over Keller in view of Yung ('203).

Figs. 1 and 2 of Yung show a detector assembly 10 including a housing 12 connected to a base 14 by an articulated arm system such that its orientation can be adjusted after the base 14 is attached to a wall or ceiling. The detection structure in included in the housing (see, e.g., col. 2, lines 53-58).

There is no teaching by Yung that the housing can be adjusted so that any portion of the detection structure would extend through the ceiling. Accordingly, it is felt that claim 10 is patentable over the combination of Keller and Yung, and it is urged that the rejection be withdrawn.

In view of the above arguments and amendments, it is felt that the present application is in condition for allowance.

Respectfully submitted,

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MARKED-UP AMENDED ABSTRACT:

'A movement detector for detecting movement of a body includes a light sensor, a kaleidoscopic mirror and a lens ~~and a kaleidoscopic mirror~~ for projecting a multiple image of the space onto the sensor. The movement detector is very sensitive and has a very small diameter.'

MARKED-UP AMENDED SPECIFICATION:

Third paragraph on page 1:

'It is a drawback of the known movement detector that the lenses that are fitted underneath the ceiling must have a given cross-section and hence occupy a comparatively large surface area of a diameter of a few centimeters, so that the movement detector can be ~~simply~~ easily discovered by ~~the~~ an unwanted person, such as a burglar. Moreover, such a comparatively large detector is experienced as a ~~disturbing~~ displeasing element on the ceiling.'

Last paragraph on page 1, extending onto page 2:

'To this end, the optical means include a mirror assembly having a kaleidoscopic effect. Because of the kaleidoscopic effect, the space is imaged onto the sensor in multiple form and, when the mirror assembly forms a closed circumference, in principle in an

infinite multiple, so that a very accurate sensor can be realized. The movement detector can be arranged in the ceiling in such a manner that only the mirror assembly projects from the ceiling. The cross-section of this mirror assembly need only amount to a few millimeters ~~only~~, so that the detector can hardly be noticed. The mirror assembly preferably constitutes an elongate body whose reflecting surface faces inwards. This body may be hollow and be formed by mirrors; it may also be formed by a solid body that is transparent to the relevant light, for example a glass body whose side faces constitute inwards facing mirrors, either by interface reflection or by way of an externally deposited mirror layer. An assembly of mirrors having a kaleidoscopic effect is known per se and described, for example in the patent documents GB-A-2 228 098 and JP-A-7 236 775.'

First paragraph on page 3:

'The invention will be described in detail hereinafter with reference to the embodiments shown in the Figures; ~~therein~~ wherein:'

MARKED-UP AMENDED CLAIMS:

1. A movement detector ~~(1)~~ which is capable of detecting movement of a body in a space and includes a light-sensitive sensor ~~(5)~~ and optical means ~~(4, 8)~~ which are capable of projecting a multiple image of the space onto the sensor ~~(5)~~, characterized in that the optical means ~~(4, 8)~~ include a mirror assembly ~~(4)~~ , the mirror assembly constituting an elongate body whose reflecting surface faces inwards, the mirror assembly having a kaleidoscopic effect.

3. A movement detector as claimed in claim 1 ~~or 2~~, characterized in that the optical means include a lens ~~(8)~~.

4. A movement detector as claimed in claim 3, characterized in that the sensor ~~(5)~~ is situated near a first end of the mirror assembly ~~(4)~~ whereas the lens ~~(8)~~ is situated near the second end of the mirror assembly ~~(4)~~.

5. A movement detector as claimed in claim 1 ~~one of the preceding claims 1 to 4~~, characterized in that the cross-section of the mirror assembly ~~(4)~~ forms a polygon.

7. A movement detector as claimed in claim 1 ~~one of the preceding claims 1 to 6~~, characterized in that the cross-section of the mirror assembly ~~(4)~~ is essentially the same along its entire longitudinal axis.

8. A movement detector as claimed in claim 1 ~~one of the preceding claims 1 to 6~~, characterized in that the cross-section of the mirror assembly ~~(4)~~ varies from a smallest to a largest cross-section along its longitudinal axis.

9. A movement detector as claimed in claim 1 ~~one of the preceding claims 1 to 8~~, characterized in that the sensor ~~(5)~~ includes an infrared sensor.

10. A method of installing a movement detector ~~(1)~~ in a space in order to detect movement of a body in the space, a light-sensitive sensor ~~(5)~~ being arranged above a ceiling ~~(2)~~ of the space while optical means ~~(4, 8)~~ are arranged in such a manner that they project a multiple image of the space onto the sensor ~~(5)~~, characterized in that the optical means ~~(4, 8)~~ include a mirror assembly ~~(4)~~ having a kaleidoscopic effect, the arrangement being such that the mirror assembly ~~(4)~~ extends essentially through the ceiling ~~(4)~~.